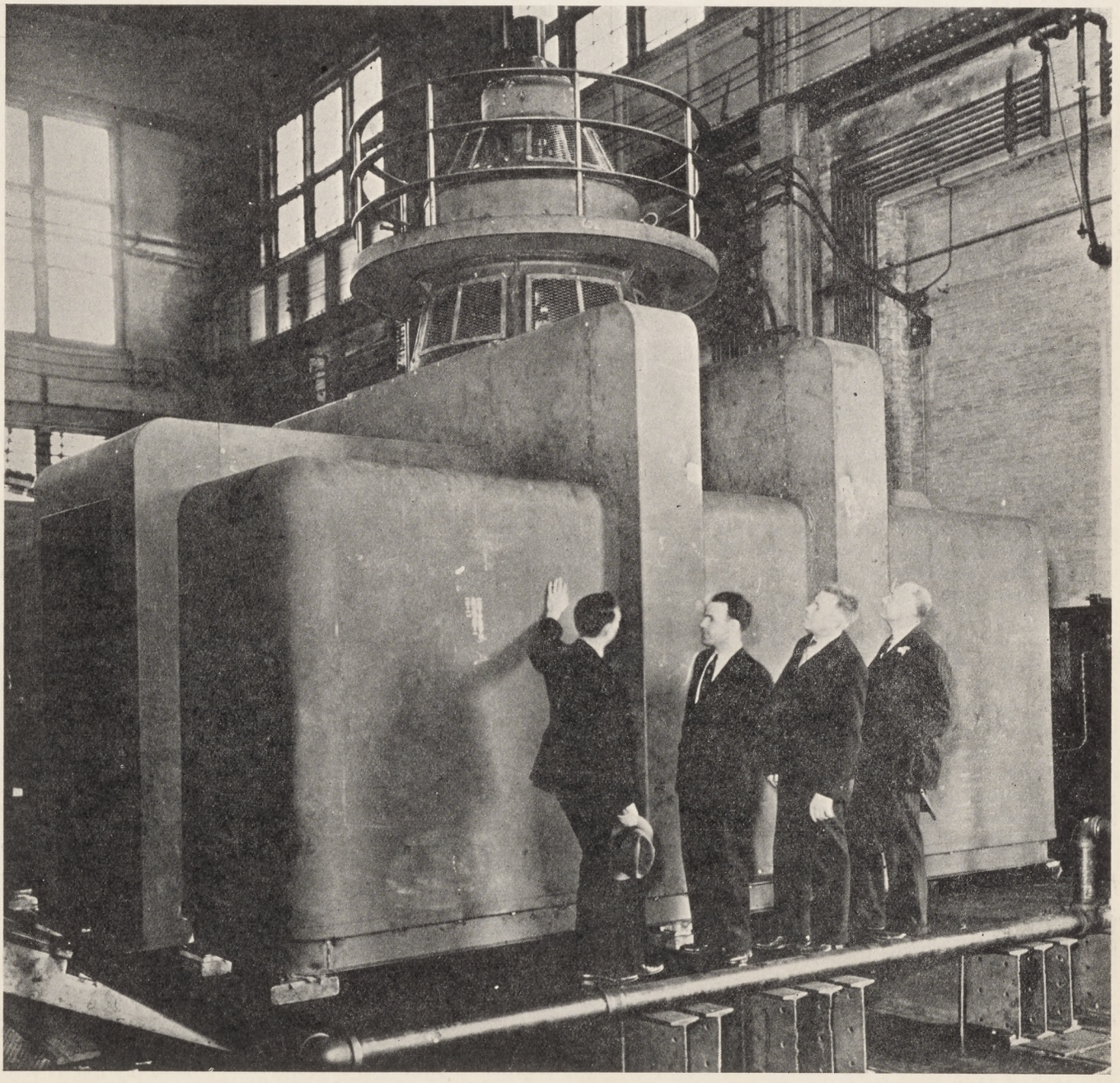
• COLORADO RIVER •

AQUEDUCT NEWS

THE METROPOLITAN WATER DISTRICT OF SOUTHERN CALIFORNIA

Vol. IV JUNE 25, 1937 No. 12



ONE OF THE HUGE ELECTRIC MOTORS TO BE INSTALLED IN AQUEDUCT PUMPING PLANTS (Story, page 2)

• COLORADO RIVER •
AQUEDUCT NEWS
THE METROPOLITAN WATER DISTRICT OF SOUTHERN CALIFORNIA

306 WEST THIRD ST.
LOS ANGELES, CALIFORNIA

Published twice monthly in the interest of Field and Office Workers on the Colorado River Aqueduct, and for the information of all other citizens of the Metropolitan Water District.

Vol. IV June 25, 1937 No. 12

Giant Motors For Pumping Plants

The picture on the cover of this issue of the NEWS shows one of the 9,000 horse power motors being built by the General Electric Company for the Intake and Gene Pumping plants on the Metropolitan Aqueduct. Al Capon, M.W.D. engineer, is standing second from the left in the party inspecting the huge motor which is being assembled in the Schnectady, New York, plant of the General Electric Company.

Described generally as three-phase, 6,900 volt, 60-cycle synchronous motors of the vertical shaft, rotating field type, each of these motors will drive one of the 200cfs centrifugal pumps in the Intake and Gene plants. These motors have a rated output of 6,700 kw, or 9,000 hp, and are a relatively slow speed type, turning at 400 revolutions per minute.

The motor illustrated on the cover is one of six being manufactured by the General Electric Company under the District's specifications No. 153. Present delivery plans call for the first of this group of motors to be shipped June 30.

This type of motor weighs approximately 90 tons. It is 18-ft. 4-in. high above the floor line, and the shaft extends 6-ft. 6-in. below the floor line. The main motor shaft is approximately 24-feet long, and is 20-in. in diameter, with a six-inch diameter vertical hole in it. The over-all length of the unit is 19-feet, and its width is 13-ft. 4-in.

The District specifications provide that each motor shall be completely assembled and connected for operation at the factory and tested in the presence of a District engineer, before being shipped.

Electric motors for the other pumping plants are being manufactured by the Allis-Chalmers Co., for the Iron Mountain plant, and by the Westinghouse Electric and Manufacturing Co. for the

(*Continued on Page* 8)

THE CAJALCO DIKE, A STUDY IN PERSPECTIVE

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Stretching across the countryside for a mile and a half, the shining white paving strip on the Cajalco Dike makes an impressive boundary along the northern edge of the reservoir. The dike has a maximum height of 90 feet and contains approximately four million cubic yards of compacted earth.

Directory

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SUPERINTENDENTS OF CONSTRUCTION, PUMPING PLANTS

Intake and Gene.....T. T. Walsh
Iron Mt. .....B. H. Martin
Eagle Mt. and Hayfield .....R. C. Booth

SUPERINTENDENTS (Main Aqueduct Tunnels)

Coxcomb and East Iron Mt. Tunnels, Winston Bros.; R. V. Johnson, Gen. Supt.

East Eagle Mt. Tunnel and West Eagle Mt. Tunnel, east portion, Broderick & Gordon; John Will, Gen. Supt.

Coachella Tunnels, Ed. Noon, Supt.; J. C. Fischer, Gen. Foreman.

San Jacinto Tunnel, District Force Acct., B. C. Leadbetter, Gen. Supt.; S. J. Shrode, John Austin and C. E. Sides, Tunnel Supts.; Chas. F. Thomas, Jr., Supt.; F. A. Backman, Gen. Foreman.

(Distribution Tunnels)

Monrovia Tunnels Nos. 1, 2 and 3, West Construction Co., H. E. Carleton, Gen. Supt.; Peter Brisbois and Luther Dennis, Tunnel Supts.; E. M. Penn, Concrete Supt.

San Rafael Tunnels Nos. 1 and 2, and Monrovia Tunnel No. 4, L. E. Dixon Co., Bent Bros., Inc., and Johnson, Inc.; S. D. Hackley and W. N. Evans, Supts.

(Canal, Siphon, Conduit)

Schedules Nos. 1, 1A, 1B, 10, 10A, 10B, 11, 11A, 11B, 11C, 13, 13A, and 13B, Aqueduct Construction Co., S. T. Corfield, Gen. Supt.; Charles Harlowe, Jr., Excav. Supt.

Schedules Nos. 2, 2A, 2B, 3, 3A, 3B, 7, and 7A, Barrett & Hilp and Macco Corp.; H. W. McKinley, Supt.

Schedules Nos. 4, 4A, 5, and 5A, Jahn & Bressi Construction Co., Joseph Muscolo, Gen. Supt.; Dominick Bressi, Asst. Gen. Supt.

Schedules Nos. 6, 8, 8A, and 8B, Clyde W. Wood and M. J. Bevanda, A. F. Weesner, Gen. Supt.

Schedules Nos. 9, 9A, 9B, and 9C, The Utah Construction Co.; Gen Arp, Gen. Supt.

Schedules Nos. 12 and 12A, Three Companies, Inc., John Will, Supt.

Schedules Nos. 14, 15, and 16, Thompson - Starrett Co., Inc., Rodney Smith, Gen. Supt.; William Hayes, Excav. Supt.

Schedules Nos. 18, 19, and 20, J. F. Shea Co., Inc., J. G. Shea, Gen. Mgr.; H. F. Rennebohm, Supt.

(Distribution Pipe Line)

Schedules No. 4P and 5P, American Concrete & Steel Pipe Co., Wm. A. Whiting, Gen. Supt.; D. H. Rankin, Plant Supt. and Const. Supt.

Schedules 6P and 7P, J. F. Shea Co., Inc., J. G. Shea, Gen. Mgr.; Ed. H. Shea, Gen. Supt.

Schedule 10P, United Concrete Pipe Corp., John Huber, Plant Supt.; Roy Richards, Const. Supt.

Schedules 2B and 2S, Western Pipe & Steel Co., L. L. White, Supt.

Schedules 8C, 9C, 12C, Basich Bros.; P. N. Hartzell, Supt.

(Dams)

Cajalco dam, The Griffith Co., Harry Davis, Gen. Supt.

Parker Dam, J. F. Shea Co., Frank Crowe, Gen. Supt., E. A. Moritz, Constr. Eng., U.S.B.R.

(Pumping Plants)

Intake and Gene, Winston Bros. and Crowell, R. A. Crowell, Supt.; F. T. Hillman Engr.

Iron Mountain, Wood and Bevanda; Grant Miner, Supt.

Eagle Mountain, L. E. Dixon Co.; F. H. Strohecker, Supt.

Hayfield, Dixon and Case; Crawford Strohacker, Supt.

Distributing Lines Start Hill Climbing

Construction progress on the upper feeder of the distributing system has reached the point on the map where the profile resembles an amusement zone roller coaster. Both the Western Pipe and Steel crews and those of the American Concrete and Steel Pipe Company are getting ready to take to the hills in a big way.

Trench excavation has now been completed across the top of Pedley Hill which is crossed by the welded steel pipe line of Schedule 2S being built by the Western Pipe and Steel Company. Standing out above the surrounding countryside, this hill rises to a sharp peak, and the 10-ft. diameter pipe line going over it will climb 200 feet in a 600-ft. horizontal distance and will drop down the other side at the rate of 260 feet in 700 feet of horizontal distance.

A few miles north of this point, on Schedule 3P, the American Concrete crews placing the 12-ft. 4-in. diameter joints of pre-cast concrete pipe have reached the north slope of the Jurupa Mountains, which are crossed by the distributing line.

The placing of these large diameter and heavy pipe sections over the tops of the Pedley Hill and Jurupa Mountains promises to be one of the most interesting construction features of the aqueduct. The 33-ft. long sections of steel pipe each weigh 18½ tons, and the 12-ft. lengths of precast concrete pipe each weigh approximately 42 tons.

Looking south at trench excavation over the top of the Pedley Hill. This is a part of Schedule 2S on the Distribution Division. Work is being done by the Western Pipe and Steel Co.

A section of the country covered by the early topographic surveys on the Colorado River Aqueduct project. This picture of these very much sunburned surveyors was taken in Bridge Canyon on June 6, 1929.

Aqueduct Surveys Started 14 Years Ago

Fourteen years ago this summer, the first reconnaissance work was started on a possible aqueduct line from the Colorado River to the Metropolitan area. In 1923 much of the area between San Bernardino and the Colorado River was unsurveyed, and there was no well-defined belt, clearly better than any other area, to which surveys might be confined.

The problem was so extensive, and there were so many possibilities as to where the line might be located, that it was decided to undertake a general topographic survey of the region, thus permitting preliminary office projections and selection of the most promising routes before final field studies were undertaken. Carried on by the Water Bureau of the City of Los Angeles from 1923 to 1930, when it was taken over by the Metropolitan Water District, this work constituted one of the most comprehensive topographic survey projects ever undertaken in this country by any agency other than the Federal Government.

Many members of the District's present staff worked on these surveys, which covered a total area of 24,656 square miles. The region covered consisted of a vast triangle extending from the Los Angeles metropolitan area northeast to Bridge Canyon in Utah, down the Colorado River for approximately 300 miles to the Mexican boundary, and then northwest through the Imperial Valley and back to Los Angeles.

The region inside the boundaries of this triangle is approximately equal to the combined areas of all of the New England States. The largest part of this topographic mapping was on a scale of 1 in. equals 10,000 ft. although 2,252 square miles were mapped on 5,000 ft. to the inch, and 2,732 square miles on a scale of 1,000 ft. to the inch. Smaller areas were mapped at 100 feet to the inch.

The most impressive visual evidence of the vast area covered by these surveys is a large relief map that was made and assembled by the Water Bureau. The making of this map itself was a big job since it covers all the area mapped by the City and District forces and much additional area for which maps were available from other sources.

This big map, part of which is now on exhibition in the basement of the Los Angeles office, is approximately 25 feet long and 25 feet wide. Its horizontal scale is 5,000 feet to the inch and its vertical scale is 800 feet to the inch.

The map is made of red vulcanized strips of fiber, ⅛ inch thick. A separate sheet of fiber was used for each contour.

TUNNELS

May 16 to June 15, 1937

TUNNEL EXCAVATION (MILES)

	Completed	Remaining
Aqueduct	87.82	4.29
Distribution	16.20	0
Total	104.02	4.29

***TUNNEL LINING (MILES)**

	Completed	Remaining
Aqueduct	83.16	8.95
Distribution	10.19	5.96
Total	93.35	14.91

*Arch considered to equal 0.9 completed section.

AQUEDUCT

CONTRACTOR	TUNNEL	LENGTH IN FEET	EXCAVATION IN FEET: NUMBER OF SHIFTS	AVERAGE PER SHIFT	THIS PERIOD	TOTAL TO DATE	REMAINING	LINING IN FEET: ARCH OR INVERT	NUMBER OF SHIFTS	AVERAGE PER SHIFT	THIS PERIOD	TOTAL TO DATE	REMAINING
BRODERICK & GORDON	EAST EAGLE MT.	9,440		Completed		9,440	0	Arch Invert			0 0	9,440 0	0 9,440
THE METROPOLITAN WATER DISTRICT OF SOUTHERN CALIFORNIA	SAN JACINTO	(68,849)			(971)	(46,212)	(22,637)				(723)	(22,601)	(46,248)
	Cabazon Shaft to East Portal	8,880		Completed		8,880	0	Arch Invert	26 0	30.9 0	803 0	8,484 130	396 8,750
	Cabazon to Lawrence	26,817	93	6.7	621	14,609	12,208						
	Cabazon Pioneer	18,119	93	8.3	769	6,209	11,910						
	Lawrence Adit	5,651	93	5.8	543	4,366	1,285						
	Potrero Pioneer	15,195	93	0.2	19	5,200	9,995						
	Potrero to Lawrence	17,670	93	3.8	350	7,241	10,429						
	Potrero Shaft to West Portal	15,482		Completed		15,482	0	Arch Invert	0 0	0 0	0 0	14,953 14,953	529 529
	TOTALS Ft.	78,289	186	5.2	971	55,652	22,637	Arch	26	30.9	803	32,877	45,412
	Miles	(14.83)			(0.18)	(10.54)	(4.29)	Invert	0	0	0	15,083	63,206

DISTRIBUTION

GRIFFITH CO.	CAJALCO OUTLET	2,368		Completed		2,368	0		75	7.2	542	994	1,354
WEST CONSTRUCTION CO.	MONROVIA NO. 1 (FromW.P.)	7,868		Completed		7,868	0			Completed		7,796	0
	MONROVIA NO. 2 (FromJct.1)	940		Completed		940	0			Completed		856	0
	MONROVIA NO. 3	(32,105)		Completed		(32,105)	(0)						
	East from Adit	11,340				11,340	0	Full Sec.			0	11,284	(19,986)
	West from Adit From West Portal	20,765				5,913 14,851	0	Invert*	51	62.5	3,190	4,120	16,690
DIXON, BENT BROS. & JOHNSON	MONROVIA NO. 4 (FromW.P.)	8,133		Completed		8,133	0		51	15.2	774	1,373	6,760
	SAN RAFAEL No.1 (FromW.P.)	4,047		Completed		4,047	0			Completed		4,028	0
	SAN RAFAEL No. 2 (FromE.P.)	5,669		Completed		5,669	0		75	18.6	1,398	2,294	3,367
	TOTALS Ft.	61,130				61,130	0	Full	252	13.3	3,352	29,449	31,467
	Miles	11.58				11.58	0	Section			(0.63)	(5.57)	(5.96)

*Invert considered to equal 0.2 completed section

Completed Features

TUNNELS

	CONTRACTOR	TUNNEL	Length in Miles	Work Started	Work Completed
AQUEDUCT	MORRISON-KNUDSEN CO.	Mecca Pass, No. 1, 2 & 3	1.13	7-17-33	2-10-35
	WEST CONSTRUCTION CO.	Whitewater Nos. 1 & 2	1.94	7-18-33	4-15-35
	SHOFNER & GORDON	Hayfield No. 2	1.03	7-8-33	7-27-35
	HAMILTON & GLEASON	Bernasconi	1.18	4-19-33	11-21-35
	J. F. SHEA CO., INC.	Cottonwood	3.81	6-14-33	12-29-35
	HUNKIN-CONKEY CON. CO.	Hayfield No. 1	1.84	10-21-33	1-9-36
	DIXON & BENT BROS.	W. Eagle—West Portion	2.02	9-8-33	3-12-36
	DRAVO CONTRACTING CO.	Valverde	7.20	6-7-33	10-18-36
	WALSH CONSTRUCTION CO.	Colorado River	1.04	3-2-34	1-29-36
	WALSH CONSTRUCTION CO.	Copper Basin Nos. 1 & 2	2.32	10-4-33	2-20-36
	WALSH CONSTRUCTION CO.	Whipple Mountain	6.11	8-25-33	1-26-37
	UTAH CONSTRUCTION CO.	IronMt.—West Portion	3.07	5-15-33	10-23-36
	WINSTON BROS. CO.	Iron Mt.—East Portion	4.48	8-9-33	10-30-36
	METRO. WATER DIST.	1000 Palms No. 1	3.04	1-25-33	1-7-37
	" " "	1000Palms No. 2	0.73	2-24-33	12-19-35
	" " "	Wide Canyon No. 1	2.71	3-31-33	2-11-37
	" " "	Wide Canyon No. 2	0.16	3-24-33	2-12-37
	" " "	Seven Palms	3.17	4-27-33	2-2-37
	" " "	Long Canyon	2.90	3-6-34	12-31-36
	" " "	Blind Canyon	1.29	3-22-34	12-3-36
	" " "	Morongo No. 1	1.08	4-21-34	1-20-37
	" " "	Morongo No. 2	0.36	12-29-34	1-5-37
	BRODERICK & GORDON	West Eagle Mt.—E. Portion	3.00	2-8-34	5-6-37
	WINSTON BROS.	Coxcomb	3.37	9-15-33	4-26-37
	METRO. WATER DIST.	East Coachella	18.30	1-25-33	5-8-37
		TOTALS	77.28		
DISTRIBUTION	J. F. SHEA CO., INC.	Sierra Madre	1.27	9-1-35	10-31-36
	DIXON, BENT BROS. & JOHNSON	Pasadena Extension	1.05	10-5-35	11-24-36
	DIXON, BENT BROS. & JOHNSON	Pasadena	2.30	2-11-35	4-29-37
		TOTALS	4.62		

CANAL, CONDUIT, SIPHON, AND PIPE LINES

	CONTRACTOR	FEATURE AND NAME OR SCHEDULE	Length in Miles	Work Started	Work Completed
AQUEDUCT	UNITED CONCRETE PIPE CORP.	Little Morongo Siphon	0.13	2-27-34	8-20-34
	METRO. WATER DIS.	Fan Hill Conduit and Siphon	0.32	10-21-33	11-19-34
	MORRISON-KNUDSEN CO.	Sch. No. 18-J, Big Morongo and San Andreas Siphon	1.86	2-12-35	9-16-36
	GRIFFITH COMPANY	Sch. No. 20-C, 21, 22, 23 & 23-A	12.79	1-5-35	10-13-36
	JAHN & BRESSI CONST. CO.	Sch. No. 5, Canal and Siphons	10.15	12-18-34	11-17-36
	JAHN & BRESSI CONST. CO.	Sch. No. 4, Canal and Siphons	10.08	6-6-35	3-18-37
	UTAH CONSTRUCTION CO.	Sch. No. 9, Canal, Conduit & Sip.	8.97	12-12-34	5-15-37
	BARRETT-HILP & MACCO CORP.	Sch. No. 2, 3, 7, Canal, Con. & Sip.	18.71	12-3-34	5-25-37
	METRO. WATER DIST.	Sch. No. 17, Conduit and Siphons	4.16	9-9-35	6-15-39
		TOTALS	67.17		
DISTRIBUTION	UNITED CONCRETE PIPE CORP.	Sch. No. 8P, Precast Concrete Pine	4.65	2-21-36	3-20-37

ION PROGRESS

CANAL, CONDUIT, SIPHON & PIPE LINES

May 30 to June 12, 1937

CANAL, CONDUIT AND SIPHON (MILES)

	Completed	Remaining
Excavation	137.09	8.58
Concrete	135.79	8.83
Back Fill	70.55	11.33

DISTRIBUTION PIPE LINE (MILES)

	Completed	Remaining
Excavation	35.43	10.88
Concrete	34.54	11.77
Back Fill	32.00	14.31

AQUEDUCT

SCHED. NO.	CONTRACTOR	FEATURES	Length In Feet	EXCAVATION—Feet			CONCRETE—Feet			BACKFILL—Feet		
				Period	To Date	Remain'g	Period	To Date	Remain'g	Period	To Date	Remain'g
1	AQUEDUCT CONSTR. CO.	Conduit and Siphons	22,025	0	22,025	0	0	22,025	0	0	22,025	0
6	WOOD AND BEVANDA	Siphon	15,521	0	15,521	0	0	15,521	0	0	15,345	176
8	WOOD AND BEVANDA	Canal and Siphons	49,339	0	49,339	0	0	49,339	0	0	7,090	800
10	AQUEDUCT CONSTR. CO.	Canal and Siphons	44,505	0	44,505	0	0	44,505	0	0	3,594	1,256
11		Canal, Conduit and Siphons	44,003	0	44,003	0	0	44,003	0	0	10,083	240
12	THREE COMPANIES, INC.	Conduit and Siphons	32,977	0	32,977	0	628	32,881	96	2,185	29,495	3,482
13	AQUEDUCT CONSTR. CO.	Canal, Conduit and Siphons	31,965	0	31,965	0	0	31,965	0	0	2,610	1,055
14	THOMPSON-STARRETT CO.	Conduit and Siphons	32,366	0	32,366	0	0	32,366	0	0	32,366	0
15		Conduit and Siphons	35,849	0	35,849	0	33	35,849	0	3,922	34,584	1,265
16		Conduit and Siphons	19,359	0	0	19,359	0	0	19,359	0	0	19,359
18	J. F. SHEA CO., INC.	Conduit and Siphons	27,537	0	27,537	0	0	27,537	0	0	27,327	210
19	J. F. SHEA CO., INC.	Conduit and Siphons	37,364	20	11,453	25,911	2,419	10,965	26,399	4,200	6,426	30,938
20		Siphons	18,618	0	18,618	0	0	18,618	0	0	18,618	0
20 A & B	M. W. D.—FORCE ACCT.	Siphons	735	0	705	30	0	0	735	0	0	735
3	WINSTON BROS. CO.	Siphon (Gene Inlet)	1,877	0	1,877	0	0	1,860	17	0	1,478	320
4	& WILLIAM C. CROWELL	Siphon (Copper Basin)	450	0	450	0	0	450	0	0	0	0
	TOTALS		414,490	20	369,190	45,300	3,080	367,884	46,606	10,307	211,041	59,836

DISTRIBUTION PIPE LINES

1	AMER. CONC. & STEEL PIPE CO.	Precast Concrete Pipe	12,277	0	0	12,277	0	0	12,277	0	0	12,277
2	WESTERN PIPE & STL. CO.	Welded Steel Pipe	54,530	676	42,602	11,928	2,542	39,827	14,703	2,046	30,478	24,052
3	AMER. CONC. & STEEL PIPE CO.	Precast Concrete Pipe	20,124	2,953	15,553	4,571	2,357	14,425	5,699	2,503	14,258	5,866
4			25,867	0	25,867	0	0	25,867	0	0	25,867	0
5			24,889	0	24,889	0	0	24,889	0	0	24,889	0
6	J. F. SHEA CO., Inc.	Precast Concrete Pipe	27,294	0	27,294	0	0	27,294	0	0	25,838	1,456
7			30,044	1,850	11,870	18,174	1,803	11,627	18,417	1,852	10,282	19,762
9	UNITED CONC. PIPE CORP.	Precast Concrete Pipe	8,697	0	0	8,697	0	0	8,697	0	0	8,697
10			10,517	0	10,517	0	0	10,517	0	0	10,450	67
11			4,105	342	3,930	175	434	3,395	710	300	2,350	1,755
8C-9C-12C	BASICH BROTHERS	Cast-in-Place Conc. Pipe	1,656	0	0	1,656	0	0	1,656	0	0	1,656
	TOTALS		220,000	5,821	162,522	57,478	7,136	157,841	62,159	6,701	144,412	75,588

Miscellaneous Construction

May 30 to June 12, 1937

AQUEDUCT PUMPING PLANTS AND APPURTENANT WORKS

CONTRACTOR	FEATURES	EXCAVATION—Cu. Yds.				CONCRETE—Cu. Yds.				STEEL—Tons			
		Est. Quan.	Period	To Date	%	Est. Quan.	Period	To Date	%	Est. Quan.	Period	To Date	%
WINSTON BROS. CO. &	Intake Plant	110,142	0	107,795	98	22,729	0	19,156	84	1,634	16.9	1,398.5	86
WILLIAM C. CROWELL	Gene Plant	87,256	0	87,239	100	14,770	0	14,257	96	2,676	27.0	2,549.5	95
WOOD AND BEVANDA	Iron Mt. Plant	357,217	0	356,000	99	23,074	1,169	22,683	98	1,785	134.4	1,701.0	95
L. E. DIXON CO.	Eagle Plant	271,560	0	238,729	88	25,050	1,636	19,110	76	2,200	87.3	1,009.2	46
L. E. Dixon & Case Const. Co.	Hayfield Plant	352,471	0	343,383	97	30,143	982	7,614	25	2,695	74.9	713.2	26
	TOTALS		0	1,133,146			3,757	82,820			340.5	7,371.4	

PARKER RESERVOIR—SIX COMPANIES, INC.

FEATURES	Est. Quan.	Period	To Date	Percent
Diversion Tunnels—Excav.	3,463 Ft.	0	3,463	100
Diversion Tunnels—Concrete	3,363 Ft.	0	3,363	100
Cofferdams—Excav.	227,582 C.Y.	0	227,582	100
Cofferdams—Fill	464,890 C.Y.	0	464,890	100
Outlet Works—Excav.	220,000 C.Y.	6,000	203,176	92
Outlet Works—Concrete	5,000 C.Y.	440	2,395	48
Dam—Excavation	1,596,400 C.Y.	44,100	1,417,250	89
Dam—Concrete	260,000 C.Y.	0	0	0
Power House—Excav.	75,000 C.Y.	0	26,835	36
Power House—Concrete	14,000 C.Y.	0	0	0

CAJALCO RESERVOIR—GRIFFITH COMPANY

FEATURES	Est. Quan.	Period	To Date	Percent
Diversion Tunnel	2,000 Ft.	0	2,000	100
Dam & Dike Excavation	651,000 C.Y.	22,300	597,402	92
Dike Fill	4,182,000 C.Y.	0	3,855,500	92
Dam Fill	3,410,000 C.Y.	162,600	1,677,900	49

BOULDER TRANSMISSION LINE—FRITZ ZIEBARTH

FEATURES	Length-Line Mi.	Period	To Date	Percent
Footings Constructed	237.0	0	237	100
Towers Erected	237.0	0	237	100
Wire Strung	237.0	0	222	94

GENE WASH RESERVOIR—J. F. SHEA CO., INC.

FEATURES	Est. Quan.	Period	To Date	Percent
Dam—Excavation	6,500 C.Y.	1,400	3,900	60
Dam—Concrete	13,365 C.Y.			
Spillway—Excavation	4,000 C.Y.	0	3,000	75
Spillway—Concrete	3,200 C.Y.			
Dike—Excavation	4,600 C.Y.	100	1,200	26
Dike—Fill	10,500 C.Y.			
Dike—Concrete	1,200 C.Y.			

COPPER BASIN RESERVOIR—J. F. SHEA CO., INC.

FEATURES	Est. Quan.	Period	To Date	Percent
Dam—Excavation	5,500 C.Y.	1,200	1,200	22
Dam—Concrete	14,275 C.Y.			
Spillway—Excavation	4,500 C.Y.			
Spillway—Concrete	450 C.Y.			
Outlet Works—Excavation	1,000 C.Y.			
Outlet Works—Concrete	2,215 C.Y.			
Gate House Superstructure				

Monolith Awarded Cement Contract

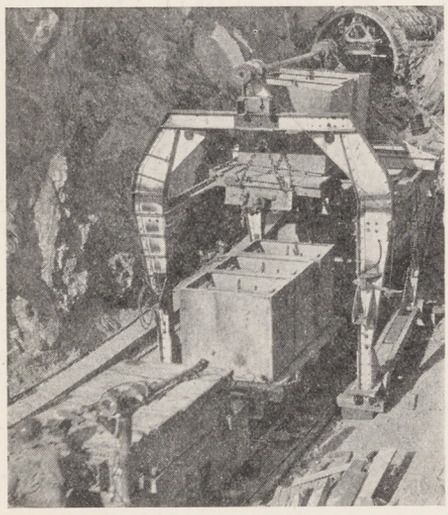
A contract for furnishing 425,000 barrels of cement for use in the construction of the aqueduct was awarded on June 18 by the Board of Directors to the Monolith Portland Cement Company. The award was made on the basis of that company's low bid of $1.19 per barrel F. O. B. the mill. The contract provides an option permitting the District to increase or decrease the amount to be purchased by 25 per cent at the same rate per barrel.

Aqueduct High Line Finished

The high line conduit along the top of Eagle Mountain and west of the pumping plant was completed, with the exception of clean-up and backfilling, by the Three Companies crews on June 12. This work is part of Schedule 12.

Using the same equipment with which they placed the invert in this high line conduit section, these crews are now placing the invert in the East Eagle Mountain tunnel which is being constructed by Broderick and Gordon. This tunnel is 9,440 feet long, and the crews had placed 4,159 feet of invert by June 19.

When the remaining mile of invert has been placed in the East Eagle Mountain tunnel, all main aqueduct tunnels, with the exception of San Jacinto, will have been completed.



Tunnel equipment was used by the Three Companies in construction of the high line conduit in Schedule 12 through rock cuts. Picture shows a batch train under a cherry picker.

MONTHLY REPORT REVIEWS ACTIVITIES ALONG THE AQUEDUCT LINE

(EDITOR'S NOTE: The following is a brief summary of some of the activities of the District as set forth in the monthly report of General Manager F. E. Weymouth, filed with the Board of Directors in June, and covering work done in May.)

Legal Division

All necessary documents to secure payment for Interim Certificates Nos. 64 and 65, in the denomination of $1,800,000, representing bonds heretofore sold to the R. F. C. were prepared. Payment for said certificates was made on May 10, and 25.

Miscellaneous Activities Division

During the month of May, 431 applicants were cleared through the District labor office of which 82 were made available for force account work, and 349 were made available for aqueduct contractors.

Considerable time was devoted to supplying information to representatives of cities and areas that are considering annexation to the District.

Field Engineering and Construction

Safety Engineering — See safety awards page 8.

Testing Laboratory—Approximately 155,700 barrels of cement were sampled and tested. A total of 771 concrete specimens were received from the field and prepared for tests, and approximately 800 others previously received were tested at the age of 28 days. Work was commenced on a series of specimens of all sizes using several cements, which are to be stored outdoors for long periods prior to test, in an effort to determine more exactly the amount of retrogression or increase in strength likely to occur in actual field exposure.

Operation of Utilities—During the period April 16 to May 15, 5,465,032 kw. hr. of power was used, 15,216 long distance telephone calls were handled, and 5,272,773 cubic feet of water was delivered.

Aqueduct Construction—See progress tables, pages 4 and 5. Drilling and blasting was continued for both abutments of the Gene Wash dam, and active work on the construction of the Copper Basin dam was undertaken on May 19.

Civil Engineering Division

Specifications—During the month of May bids were opened on seven sets of specifications, and eight sets of specifications were issued, including Specifications No. 215 for 850,000 barrels of Portland cement.

Design — Designs and specifications were prepared for the Palos Verdes feeder, for the operating bridge of the Cajalco outlet tower, and for miscellaneous metal work for the Cajalco, Gene Wash, and Copper Basin dams.

Materials — During the month of May orders were placed for 373 tons of billet steel and 376 tons of rail steel for use on the distribution system. Approximately 137,000 barrels of cement were shipped to the field.

Distribution Division

Office and Field Engineering—Surveys were continued on revised portions of the Palos Verdes feeder line between San Rafael tunnel No. 1, and 98th St. The preparation of final plans and specifications for the upper 18 miles of this feeder were continued.

Field Construction — See progress tables pages 4 and 5.

Electrical Engineering Division

Office Engineering—Work was continued on the detail drawings for the installation of pumping plant equipment, and on the checking of manufacturers' drawings. Inspection of equipment under construction was continued at the various manufacturing plants.

Field Construction — See progress tables pages 4 and 5. Nine miles of towers were erected on the 230-kv transmission line, completing the entire 237 miles of towers on this line. Construction of the entire line, including the stringing of the conductor, was 96.9 per cent completed at the end of the month.

Personnel Division

Sixty-five classified positions were filled during May, 57 of which were filled by transfer from other classified positions and two by transfer from unclassified positions. The net turnover for all divisions for April was 5.4 per cent.

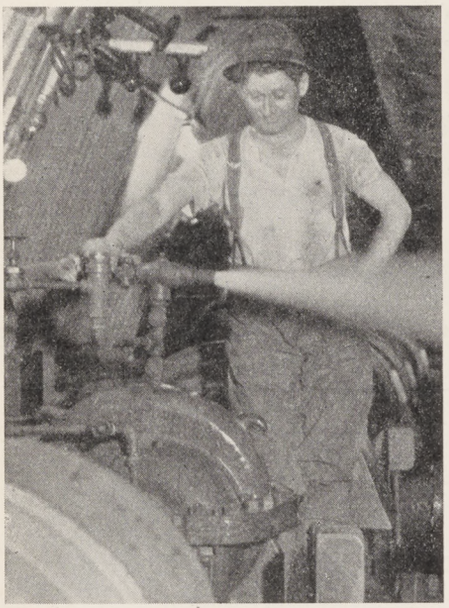
Purchasing Division

Purchase orders issued numbered 1,412 and amounted to approximately $202,132. Carload forwardings numbered 525.

Accounting and Coskeeping Div.

The total cost of construction accomplished to May 31 was $135,647,156.

NEWS FROM FIELD AND OFFICE



Engaged in blowing muck out of the sump of one of the pumps in the booster station of the west Cabazon heading of the San Jacinto tunnel is Dan McCarthy, veteran pumpman.

Another scoop reported by the Purchasing Department correspondent (only three months late) is the fact that the M. W. D. had a team which took first place in a series of tournaments of the Civic Center Handicap Bowling League. Being modest, they first waited until the group headed by Jimmy Swinford reported their capture of third place in a similar competition (AQUEDUCT NEWS, May 25). The latest group of strong armed, but bashful athletes to report winning the victor's laurels are Dick Edwards, Arch Sewell, Bob Skinner, Ken Davis, C. C. Elder, and Duke MacConaghy. They took first place over teams composed of State Engineers, City Engineers, and City Park Employees.

* * *

Mr. L. E. Dixon comes to the front to announce that a group of his men on the San Rafael tunnel have organized a baseball team that's really hot stuff. They took a team from the West Construction Co. (Monrovia tunnels) down the line recently, and now issue a challenge to any and all aqueduct teams—including the much publicized Shea team in Ontario. Mr. Dixon states that he'll be glad to act as umpire in case there is a vacancy in that position. Inquiries addressed to the NEWS will be forwarded to the San Rafael gang.

Aqueduct Temperatures
June 1 to June 15

	Max.	Min.
Div. 1	104°	62°
Div. 2	105°	60°
Div. 3	101°	61°
Div. 4	98°	56°
Divs. 5 and 6	94°	47°

Much to the amazement of the elected politicians, the L. A. Employees' election of representatives on the Board of Governors was held on June 17 with the following results: To represent Accounting, Controller, Personnel, and Right-of-Way — Marvel Murray; Design, Distribution, Electrical-Mechanical — Joe Base; Chief Engineer, Legal, Executive Secretary, Purchasing—John "Skipper" Kiegan; Miscellaneous Activities, Garage, Employment, Medical—E. V. "Gene" Reynolds. As predicted in the last NEWS, "Smoke-Eater-Gene" swept the field in his bailiwick. Inasmuch as he was the only candidate to get a complete landslide, it is reported that the Employees Association is planning an investigation of his campaign expenditures. At present Gene is passing the buck to his manager, Rufe Fee. One of the aftermaths of the election was a plaintive query from W. H. "Bill" Spear. On being informed that he was the retiring representative on the Board for the Design, Distribution, and Electrical group, Bill said it was the first time he'd known he was ever on the Board. He's trying to collect back salary now.

* * *

Chester G. Olson of the Controller's Office reports the arrival of a son in his family on June 11. The young man is named Richard G. Olson, and his official weight at birth was 8 pounds, 5 and 13-16 ounces.

* * *

The Purchasing Division is helping to keep the summer marriage procession in motion with the announcement of the forth-coming marriage, on July 2, of Conrad Sangren of that office to Miss Eleanor Anderson of La Crescenta.

* * *

Hoover High School of Glendale dedicated their school annual for the year just closing to the Metropolitan Aqueduct and to the men who are building it.

At the western end of the aqueduct is another Parker—this one, however, is Jack Parker who heads a survey crew on the location of the Eagle Rock-Palos Verdes cross-feeder of the distributing system.

M. W. D. transfers during the last month have included the following:

Joe Vazquez, chainman, from Division 2 to Distribution.

Inspectors Bert Soderblom, and R. C. Hammersmith from Division 4 to Distribution.

D. S. Blackhurst, chainman, from Division 4 to Division 2.

W. W. Miller, inspector, from Div. 4 to Distribution.

John F. Odekirk, instrumentman, Div. 4 to Distribution.

General Clerk L. S. White from Transmission to Div. 2.

John Peeler, inspector, from Div. 3 to Distribution.

Instrumentman Paul Calvo, and Inspector Charles Sweet, from Div. 4 to Div. 3.

E. P. Ford, field clerk, from Div. 4 to Div. 5.

Master Mechanic C. E. Hauenstein from Div. 4 to Div. 2.

General Foreman John Schweer, from Div. 1 to Div. 2.

General Clerk John Clark from Div. 4 to Div. 1.

Chainman C. W. Sheaffer from Operations to Div. 2.

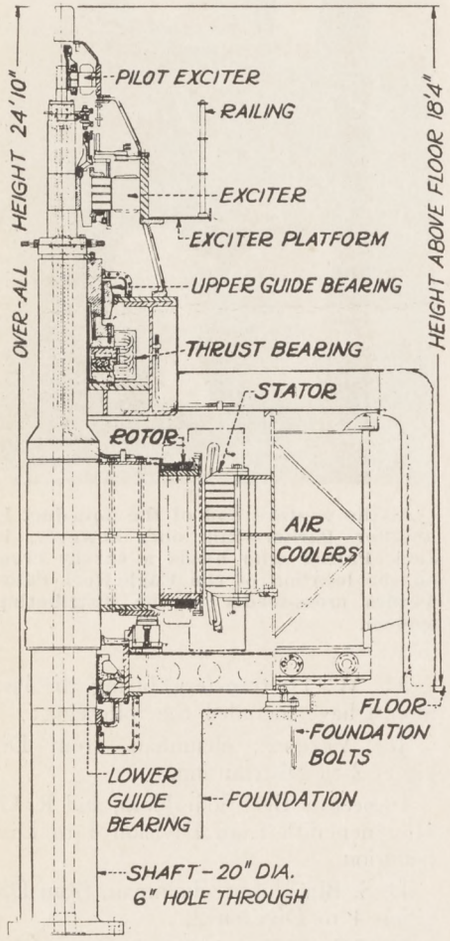
Kenneth Albin, inspector, Div. 3 to Distribution.

MOTORS BEING ASSEMBLED FOR PUMPING PLANTS

(*Continued from Page 2*)

Eagle Mountain and Hayfield pumping plants.

First motor to be installed in an Aqueduct plant probably will be one of the



Half section drawing of the General Electric motor shown on the cover of the NEWS.

4,300 hp motors for the Iron Mountain plant, present plans calling for delivery about August 15.

The motors for the Eagle and Hayfield plants will have a rated output of 12,500 horse power. The ultimate pumping heads at these plants are 440.5 feet at Eagle and 444.3 feet at Hayfield.

SAFETY FLAG AWARDS

COACHELLA TUNNELS

Berdoo was awarded the safety flag for 24,133 man-hours worked and no lost-time accidents.

SAN JACINTO TUNNEL

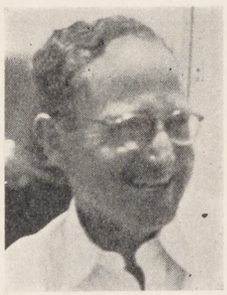
Tunnel Driving:

Lawrence adit was awarded the safety flag for tunnel driving with 45,056 man-hours worked and no lost-time accidents.

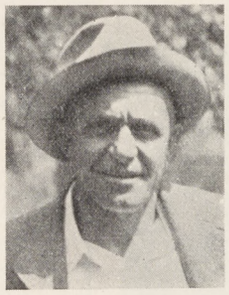
Tunnel Concreting:

West Portal was awarded the safety flag for having worked 2,808 man-hours during the period without lost-time accidents.

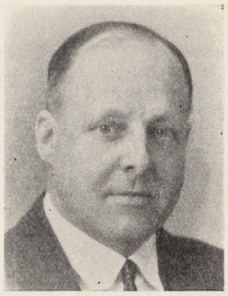
Who's Who On the Aqueduct



K. Q. Volk



P. N. Hartzell



W. H. Pinkham

K. Q. VOLK

Resident Engineer, Schedule 2S, Distribution Division, Metropolitan Water District.

Born April 28, 1890, Myrtle Creek, Oregon . . . 1910-1911, University of Southern California, 1912-1913, University of California, Berkeley, Graduated B.S. in Civil Engineering . . . '13-'14, Assistant Engineer, U. S. Indian Service, design and construction of canals and structures . . . '14-'17, Assistant Engineer with J. B. Lippincott, Los Angeles, hydrographic studies, water works construction, and valuations . . . 1917-1918, 1st Lieutenant, Corps of Engineers, U. S. Army . . . 1919-1923, Member of consulting engineering firm of J. B. Lippincott, Los Angeles, reporting and investigating surface and underground water supply in California, Arizona, and Texas . . . 1924-1925, Chief Engineer, Santa Fe Irrigation District . . . 1925-1926, Chief Engineer, Vista Irrigation District . . . 1926-1933, member of firm, J. B. Lippincott, Los Angeles . . . Has been with M. W. D. since February, 1933 . . . Was resident engineer for District during construction of Morris Dam . . . Has been in Distribution Division since completion of Morris Dam in charge of exploratory work at Cajalco reservoir, and later as resident engineer on construction of welded steel pipe line, and Santa Ana River Bridge, Schedules 2S, and 2B . . . Is president of the Los Angeles Chapter of the American Society of Civil Engineers . . . Is married and has two sons.

P. N. HARTZELL

Superintendent for Basich Brothers Construction Co., Distribution Schedules 8C, 9C, and 12C.

Born in Bethlehem, Pennsylvania, May 21, 1884 . . . 1903-1904, Lehigh University, 1905-1906, Stanford University, Graduated B.S. in Civil Engineering . . . 1906 with contracting firm of Barnison and Hibbard, San Francisco, various types of construction during period immediately following San Francisco earthquake . . . Period of 26 years, 1907-1933 with Stone and Webster Engineering Corporation as engineer, foreman, assistant superintendent, and general superintendent . . . Most of his work during this period had to do with the construction of hydro electric developments and dams . . . Some of the projects he was on included, White River development in Washington; Big Creek development, California; Great Western Power Co., California; Pillsbury Dam and Snow Mountain Dam; Keokuk Dam, Mississippi River; Assistant Superintendent on first three units of Edison Co. steam plant in Long Beach; Conwingo development, Maryland; Baker River development, Washington; Rock Island Dam, Columbia River; Shuffleman Steam Plant, Seattle, Washington . . . '33-'35 in contracting business for himself in Seattle . . . '35-'36, Property Management for Pacific 1st Federal and Loan Co., Portland, Ore. . . . With Basich Brothers since 1936 . . . Present operations of this company include construction of siphons on distributing system across San Gabriel, Monrovia, and Eagle Rock Canyons . . . Is married . . .

W. H. PINKHAM

Engineer, Design Division, Metropolitan Water District.

A native son . . . Born April 8, 1884, Los Angeles, California . . . Graduated from Los Angeles High School in 1903, and from University of California, Berkeley, 1908—B.S. in Mining Engineering . . . Experience includes eighteen years in the office of the City Engineer of the City of Los Angeles. Work consisted of supervision of hydraulic and structural design including underground pipe line systems, reservoirs, pumping and treatment plants. Was Engineer of Sewers for City of Los Angeles and was in charge of design of North Outfall Sewer for the City of Los Angeles . . . Has been with the Metropolitan Water District since May, 1929 . . . Principal work with the District has been the supervision of hydraulic design . . . Is married and has a son and a daughter.